

TECHNICAL MEMORANDUM
Utah Coal Regulatory Program

October 6, 2011

TO: Internal File

THRU: Daron Haddock, Coal Program Manager

FROM: Steve Christensen, Environmental Scientist III

RE: Excess Spoils Disposal Area #2 Amendment, Sunnyside Cogeneration Associates, Sunnyside Refuse/Slurry, Permit C/007/0035, Task ID #3893

SUMMARY:

On August 18th, 2011, the Division of Oil, Gas and Mining (the Division) received an amendment to the Sunnyside Refuse/Slurry MRP. The amendment proposes to expand the Excess Spoils Disposal Area #2. The amendment outlines a series of phases to be implemented to facilitate the reclamation of an existing portion of the refuse area as expansion occurs on an adjacent area. The following is a technical analysis relative to the hydrology section of the State of Utah R645-Coal Mining Rules.

The amendment should not be approved at this time. The following hydrology deficiencies must be addressed prior to final approval:

R645-746.200- The Permittee should provide a clearer narrative/description within the text of the MRP that identifies when the various hydrologic components (i.e. the two diversion ditches and the 18" CMP culvert) will be installed. The narrative should also identify what the "*existing surface diversion*" is that is referenced in the 2nd paragraph on page 6 of Appendix 9-7. The text should reference a map/figure that depicts the phases of the Excess Spoil Pile #2 expansion along with the associated hydrologic features.

R645-301-746.200- The Permittee must provide the following additional design information for the proposed 18" RCP culvert referenced on page 6 of Appendix 9-7:

- 1) A map/figure that clearly depicts the location of the proposed culvert. The culvert should be labeled and easily identified.

- 2) The supporting design/sizing calculations for a refuse pile/permanent diversion (i.e. utilizing a 100-year, 6-hour event). Appendix 7-3 will need to be revised accordingly.
- 3) The Permittee must provide detailed design drawings for the proposed culvert. The drawings must provide the culverts inlet and outlet design as well as any other design consideration that may be necessary depending on the peak storm flow generated from the design storm (i.e. energy dissipation/rip rap detail etc).

R645-301-746.200-The Permittee must provide the following additional design information for the proposed "*perimeter diversion ditches*" referenced on page 6 of Appendix 9-7:

- 1) A map/figure that clearly depicts the locations of the proposed ditches and where they report.
- 2) The supporting design/sizing calculations for a refuse pile diversion (i.e. utilizing a 100-year, 6-hour event). Appendix 7-3 will need to be revised accordingly.
- 3) Detailed design drawings for the proposed ditches (i.e. a typical cross-section).

R645-301-760- The Permittee must revise the hydrologic reclamation plan to address the "*additional perimeter diversion ditches*" referenced on page 6 of the Appendix 9-7. The revision in section 10.6 Drainage Control should discuss whether these diversions will be permanently retained following reclamation of the site. If they are to be retained following reclamation, the Permittee should provide the supporting design/sizing calculations for a permanent diversion. Additionally, the revisions should discuss the proposed RCP culvert that is to be left permanently following reclamation.

TECHNICAL ANALYSIS:

OPERATION PLAN

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Refuse Piles

The amendment does not meet the Refuse Pile requirements of the State of Utah R645-Coal Mining Rules. The amendment does not provide adequate diversion information for the proposed hydrologic components of the Excess Spoil Pile #2 expansion. Refuse piles require a more robust hydrologic design that is discussed in detail below.

Findings:

The amendment does not meet the Refuse Pile requirements of the State of Utah R645-Coal Mining Rules (See Diversions: General section below for specific deficiencies).

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Diversions: General

On page 6 of Appendix 9-7, the Permittee discusses the hydrologic components of the proposed expansion of Excess Spoil Pile #2. During the connection of Phase 2 to Phase 1, the Permittee discusses how a permanent 18" CMP culvert will be installed in the "*Phase 1 East perimeter ditch going southwesterly under the Phase 2 pile*". The amendment also discusses "*additional perimeter diversion ditches*" to be constructed along the south, east and west sides of

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the Phase 2 and 3 areas. Additional information is required in order to determine if the amendment meets the diversion requirements of the State of Utah R645-Coal Mining Rules.

The Permittee should provide a clearer narrative/description within the text of the MRP that identifies when the various hydrologic components (i.e. the two diversion ditches and the 18" CMP culvert) will be installed. The narrative should also identify what the "*existing surface diversion*" is that is referenced in the 2nd paragraph on page 6 of Appendix 9-7. The text should reference a map/figure that depicts the phases of the Excess Spoil Pile #2 expansion along with the associated hydrologic features.

The Permittee must provide the following additional design information for the proposed 18" RCP culvert referenced on page 6 of Appendix 9-7:

- 1) A map/figure that clearly depicts the location of the proposed culvert. The culvert should be labeled and easily identified.
- 2) The supporting design/sizing calculations for a refuse pile/permanent diversion (i.e. utilizing a 100-year, 6-hour event). Appendix 7-3 will need to be revised accordingly.
- 3) The Permittee must provide detailed design drawings for the proposed culvert. The drawings must provide the culverts inlet and outlet design as well as any other design consideration that may be necessary depending on the peak storm flow generated from the design storm (i.e. energy dissipation/rip rap detail etc).

The Permittee must provide the following additional design information for the proposed "*perimeter diversion ditches*" referenced on page 6 of Appendix 9-7:

- 1) A map/figure that clearly depicts the locations of the proposed ditches and where they report.
- 2) The supporting design/sizing calculations for a refuse pile diversion (i.e. utilizing a 100-year, 6-hour event). Appendix 7-3 will need to be revised accordingly.
- 3) Detailed design drawings for the proposed ditches (i.e. a typical cross-section).

Findings:

The amendment does not meet the Diversion requirements of the State of Utah R645-Coal Mining Rules. The following deficiencies must be addressed prior to Division approval:

R645-746.200- The Permittee should provide a clearer narrative/description within the text of the MRP that identifies when the various hydrologic components (i.e. the two diversion

ditches and the 18" CMP culvert) will be installed. The narrative should also identify what the "*existing surface diversion*" is that is referenced in the 2nd paragraph on page 6 of Appendix 9-7. The text should reference a map/figure that depicts the phases of the Excess Spoil Pile #2 expansion along with the associated hydrologic features.

R645-301-746.200- The Permittee must provide the following additional design information for the proposed 18" RCP culvert referenced on page 6 of Appendix 9-7:

- 4) A map/figure that clearly depicts the location of the proposed culvert. The culvert should be labeled and easily identified.
- 5) The supporting design/sizing calculations for a refuse pile/permanent diversion (i.e. utilizing a 100-year, 6-hour event). Appendix 7-3 will need to be revised accordingly.
- 6) The Permittee must provide detailed design drawings for the proposed culvert. The drawings must provide the culverts inlet and outlet design as well as any other design consideration that may be necessary depending on the peak storm flow generated from the design storm (i.e. energy dissipation/rip rap detail etc).

R645-301-746.200- The Permittee must provide the following additional design information for the proposed "*perimeter diversion ditches*" referenced on page 6 of Appendix 9-7:

- 4) A map/figure that clearly depicts the locations of the proposed ditches and where they report.
- 5) The supporting design/sizing calculations for a refuse pile diversion (i.e. utilizing a 100-year, 6-hour event). Appendix 7-3 will need to be revised accordingly.
- 6) Detailed design drawings for the proposed ditches (i.e. a typical cross-section).

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

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Hydrologic Reclamation Plan

The Permittee must revise the hydrologic reclamation plan to address the “*additional perimeter diversion ditches*” that are referenced on page 6 of the Appendix 9-7. The revision in section 10.6 Drainage Control should discuss whether these diversions will be permanently retained following reclamation of the site. If they are to be retained following reclamation, the Permittee should provide the design calculations for a permanent diversion.

Findings:

The application does not meet the Hydrologic Reclamation Plan requirements of the State of Utah R645-Coal Mining Rules. The following deficiency must be addressed prior to final approval:

R645-301-760- The Permittee must revise the hydrologic reclamation plan to address the “*additional perimeter diversion ditches*” referenced on page 6 of the Appendix 9-7. The revision in section 10.6 Drainage Control should discuss whether these diversions will be permanently retained following reclamation of the site. If they are to be retained following reclamation, the Permittee should provide the supporting design/sizing calculations for a permanent diversion. Additionally, the revisions should discuss the proposed RCP culvert that is to be left permanently following reclamation.

RECOMMENDATIONS:

The amendment should not be approved at this time. The deficiencies identified herein must be addressed prior to final approval.